dorsolateral prefrontal cortex modulating activation in the hippocampus (Anderson et al. 2004). Anderson and colleagues have argued that these findings provide an existence proof of mechanisms that could underlie repression (Anderson 2006; Anderson & Green 2001; Anderson et al. 2004). Freud (1915a/1963) defined repression as "simply the function of rejecting and keeping something out of consciousness" (p. 147), which is precisely what we asked our subjects to do. Thus, it simply is no longer reasonable to say that there is *no way* that repression could occur.

However, to conclude, based on these findings, that inhibitory control underlies traumatic memory repression, though plausible to some (certainly to us and perhaps Erdelyi), is as warranted as concluding that false memories of abuse can be implanted based on misremembering a yield sign. Several issues remain to be addressed to build more ecologically valid support for this hypothesis. First, can inhibition suppress *complex multi-modal memories for emotionally arousing events* thought to be central to repression? Second, can inhibition endure for an extended time, or does it need to be continually reinstated? Third, what triggers recovery, and what are a memory's characteristics, once recovered? Fourth, might suppressed memories exert unconscious influence on behavior, through priming or conditioning? Finally, might inhibition progress from being intentional to being unintentional? The development of habitual diversionary thoughts through many experiences with avoiding a memory may render exclusion so routine that the original purpose of the diversions may be forgotten. Might the resulting retrieval-induced forgetting recurrently reinstate inhibition (Anderson 2001; Anderson & Green 2001) without people's awareness?

Fortunately, significant progress has already been made. For instance, memory inhibition in the think/no-think paradigm can be obtained with emotionally negative stimuli (Anderson & Kuhl 2004; Joorman et al. 2005), even when those stimuli are aversive photographs (e.g., car accidents; Depue et al. 2006). Interestingly, both retrieval-induced forgetting (Barnier et al. 2004; Wessel & Hauer 2006) and directed forgetting have now been observed with autobiographical memories (Barnier et al., in press), even when the memories are recorded over multiple weeks in a diary and contain emotionally significant events (Joslyn & Oakes 2005). Others have demonstrated that inhibition in the think/no-think paradigm affects explicit, but not implicit, memory (Kawaguchi et al. 2006), showing persisting influence of inhibited information outside of awareness (see also, Bjork & Bjork 2003). Although some reports indicate that retrieval-induced forgetting dissipates after 24 hours (MacLeod & Macrae 2001; Saunders & MacLeod 2002), others have now observed these effects, undiminished, after a week (Storm et al., in press; see also Migueles & Garcia-Bajos, submitted). Importantly, we have found that people with more extensive history of trauma (of any sort) show enhanced memory inhibition (Anderson & Kuhl 2004), establishing a clear connection between these processes and those likely to be used to control unwanted remindings in daily life. These findings validate the point, stressed by Erdelyi, that individual differences will turn out to be crucial. All that it takes for inhibition to be a reasonable model of repression is for there to be *some* individuals who can wield it effectively. Indeed, although the overall size of the inhibition effect in the think/no-think procedure is modest (7–10%), some individuals show effects as large as 60%, even though the total time spent suppressing is only a little over one minute. Why? Understanding this variation is a vital goal in the coming years.

Although the science of repression is in its early stages, the burgeoning knowledge about the cognitive and neural basis of executive control, long-term memory, attention, and affect regulation will surely provide a powerful theoretical basis through which to understand how the human mind exerts control over unwanted memories or feelings. At this early stage, what is required most of all to transform the nascent cognitive neuroscience of repression is patience, a long-view of progress, and a skeptical stance regarding the overly damning and tendentious critiques of the most strident skeptics of repression. With any luck, Erdelyi's target article will entice a generation of talented researchers to understand how humans adapt memory in the aftermath of trauma, and experimental psychology will no longer sweep repression under the rug.

Can repression become a conscious process?

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Abstract: A major weakness in Erdelyi's account concerns the claim that repression can become conscious. A relational account of cognition demonstrates that if repression is successful, then the repressive act cannot become known. Additionally, "resistance" further distinguishes "repression" from "suppression." Rather than blurring the distinction between these processes, it is possible to recognise a series of defences. Suggestions are provided for alternative research avenues.

Erdelyi's target article provides an important contribution to understanding repression within modern psychological thinking. However, a major theoretical weakness in his account, involving the claim of a "false" distinction between repression and suppression, concerns whether repression can become conscious. Such an assertion necessitates a discussion of what is meant by "conscious" and "unconscious," but Erdelyi's reference to an "unconscious–conscious" continuum (comparing the issue to the arbitrary "child–adult" distinction), is uninformative since it is without reference to "knowing" (an issue similarly neglected by others within this debate – e.g., Cramer 2000). Subsequently, the conceptual coherency of Erdelyi's position remains unclear. A helpful direction to address this is a *relational* account of consciousness, where cognition (understood here in terms of acts of *knowing*, such as believing and remembering) is viewed as a *relation* between a cognising subject (a knower) and an independent object term (a situation, or state of affairs) that is known (Anderson 1927/1962; Maze 1983; Michell 1988).[1] To be "known" is a relation entered into, rather than a quality of property of situations known, so for a mental act p (where p may be a desire or belief that p), to be conscious is simply for p to be *currently known* (such that subject S currently knows p), and to be unconscious means simply that p is not currently known. The act of knowing is, itself, not automatically known but requires attending to for it to become conscious. That is, when S knows (or wishes, etc.) of some situation p, the relation of knowing (or wishing, etc.) (call this relation SR_p) is itself unconscious and does not become conscious unless it becomes the object of a *second mental act*, such that S knows SR_p. For example, at a specific time S becomes aware of p, and then at a later time S is prompted to pay attention to the fact of becoming aware of p (S knows that S knows p). This awareness of p can now be called conscious, whereas previously it had been an unconscious mental act, or *descriptively unconscious* (Freud 1923/1961, p. 13). Furthermore, any process will remain unconscious if the causal antecedents necessary for its becoming conscious fail to occur. Thus Freud correctly recognised that "every psychical act begins as an unconscious one, and it may either remain so or go on developing into consciousness" (Freud 1912/1958, p. 264).

Repression, itself, can be conceptualised as the act of turning away from, and inhibiting, wishes and desires that are believed to engender threat (Freud 1915a/1957; 1926a/1959). On the foregoing analysis, for repression to become conscious would mean that it is capable of becoming the object of a second mental act. That is, when S represses the wish for p to be the case (again, a relation, SR_p), that repressive act can be known

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(*S* knows SR_p). However, a problem emerges here for Erdelyi's account, not because repression cannot ever be known by the repressing subject, but due to the consequences of repression, itself. As Freud notes, repression prevents more than just the target from becoming conscious, because not only is the "instinctual impulse . . . in some way inhibited, its precipitating cause, with its attendant perceptions and ideas, is [also] forgotten" (Freud 1939/1964, p. 128). That is, if repression is successful, then the connection with the repressed material prevents the act itself from becoming conscious.

The reasoning for this is as follows: To know that same act of repression (SR_p) requires knowing the terms involved in that act, which requires knowing p. However, if repression is successful, then it is no longer possible to know p, and so it would no longer be possible to know the repressive act, SR_p, until the repression is lifted (and even then it would not be automatically conscious but only so if becoming the object of a second mental act). Thus, even if the repressive act is known when repression first occurs, knowledge of this would not be possible after the act. Furthermore, the clinical phenomenon of "resistance," central to Freudian repression (cf. Madison 1961), and which Erdelyi fails to address, reveals that repression is more than simply ignorance that can easily be corrected (Freud 1910b/1957, p. 225). Instead, resistance occurs despite *S*'s "conscious" intention to know the repressed (Freud 1910a/1957, p. 30), indicating that the repressed is actively prevented from being known *unconsciously* (which raises certain theoretical questions concerning how this could occur – see Maze & Henry 1996; Boag, in press). "Suppression," on the other hand, appears to involve a subject *S* knowing the target (p), suppressing knowledge of it (such that p is no longer currently known), but both readily recalling p, and the act of suppression (SR_p), itself (Anspaugh 1995; Juni 1997). Rather than blurring the distinction between repression and suppression, then, it may be more helpful to simply recognise the existence of a *series* of defensive operations, as Freud indicated:

> Between repression and what may be termed the normal method of fending off what is distressing or unbearable, by means of recognising it, considering it, making a judgement upon it and taking appropriate action about it, there lie a whole series of more or less clearly pathological methods of behaviour on the part of the ego. (Freud 1936/1960, pp. 245–46)[2]

Erdelyi's general thesis is not incompatible with this position, although he appears to want to conflate repression with suppression to make the existence of repression indisputable. However, this is unnecessary because the existence of "inhibitory processes," of which repression is a species, is incontrovertible, and serves as an important avenue for empirical research of the motivated cognitive distortions that Erdelyi refers to. Freudian repression itself is best understood in terms of cognitive-behavioural inhibition (see Boag 2006), a conceptualisation which finds many parallels in contemporary psychology (e.g., Fox et al. 2005; Nigg 2000). Exploring the neural mechanisms of such processes provides a solid empirical platform for investigating psychodynamic processes, and of particular interest is the relationship among the prefrontal cortex, "behaviour inhibition," and the mediation of conflicting responses, as discussed within modern neuroscientific research (e.g., Cardinal et al. 2002; Ridderinkhof et al. 2004). Thus, while Erdelyi's proposal requires further conceptual development, his paper is an important contribution to bringing repression into the framework of contemporary empirical psychology.

NOTES

1. This viewpoint has a long history, spanning back to Aristotle (see Petocz 1999), through medieval scholasticism (see Pasnau 1997), and emerging in both the American new realists (e.g., E. B. Holt) and British realists (e.g., G. E. Moore, J. Laird, and Samuel Alexander; see Michell 1988). The position is also prominent in the Australian school of Andersonian Realism (see Anderson 1927/1962; 1930/1962; Baker 1986).

2. However, there is no clear difference in quality between unconscious and conscious processes, on the one hand, and normal and pathological behaviour, on the other (see Petocz 1999, p. 232).

Motive and consequence in repression

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Abstract: Erdelyi's unified theory of repression offers a significant advance in understanding the disparate findings related to repression. However, the theory de-emphasizes the role of motive in repression, and it is argued here that motive is critical to the understanding of repression as it occurs in the mental life of individuals.

Matthew Erdelyi's article, "The Unified Theory of Repression," presents a theoretical framework from which to view the vast array of findings on the phenomenon of repression. In this commentary I examine the implications of a unified view on our understanding of repression, particularly in terms of the role of repression in the ecology of the mental life of the individual.

Motive. One main feature of Erdelyi's unified theory is that it posits that the process of repression arises from the normal operation of attention and memory; it occurs as a function of human cognition due to the wide array of stimuli that may be impinging upon consciousness at any time. To support this argument, Erdelyi distinguishes between the *process* of repression itself, and the defensive purposes (the motive) repression frequently serves. The distinction between process and motive permits the use of evidence from a wide range of experimental literatures on attention and memory that had been previously thought to be unrelated to repression.

In separating process from defense, however, we may lose the concept of motive in our understanding of repression as it occurs in the ecology of mental life. While we have gained an understanding of how repression works, we are less equipped to understand why it occurs. It could be argued that motive is a critical aspect of repression; indeed, Freud referred to repression as inhibiting "unbearable" mental contents (Freud 1915a/1963), putting motive at the center of repression. A view of repression as the motivated forgetting or avoidance of unwanted mental contents gives us some purchase on the reasons why these processes may be employed, and allows us to link the behavior to informational threat in the environment.

Also, motive may also be a key in understanding why the use of repression becomes automatic (and therefore unconscious). Erdelyi shows that repression may be either conscious or unconscious, and there is extensive evidence for unconscious repression. As Baars (2002) points out, one of the apparent functions of consciousness is to facilitate learning, resulting in the automatizing of various processes. Once automatized, these processes are no longer under conscious control. If we assume that repression involves (in at least some instances) an automatic process, then the concept of motive allows us to link learning – a motivated acquisition of skills – with the automatizing of repression.

A further role for motive in the understanding of repression is a link to individual differences in the use of repression. A well-established line of research has examined individuals thought to use repression habitually; this individual difference is referred to as the repressive coping style (e.g., Weinberger 1990; Weinberger et al. 1979). Research on the repressive coping style has linked this to alterations in attention, memory for negative stimuli, autobiographical memory, and a range of other behaviours, generally elucidating the effects that repression may have on cognitive functioning (Derakshan & Eysenck 1997; Weinberger 1990).

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